Active Learning: Participation, Group Work and Still Lots of Content to Cover

Resource Collection prepared by
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Active Learning: The Evidence

--an amazing free resource with chapter summarizing much of the current research on learning with many chapters written by those doing the research and writing about it with accessible language and suggestions for implementing what the research has established

--clear descriptions of three group learning models; problem based learning, process-oriented guided inquiry and peer-led team learning. References relevant research and resources.


--Freeman et.al. conducted a 225 study meta-analysis that compared classes using active learning approaches with classes taught by lecture. Exam grades improved by 6% in classes with active learning and students were 1.5 times more likely to fail in courses taught by lecture. Weiman offers a commentary on the meta-analysis. Allen provides a concise summary of this research in an open access journal.

--identifies 10 research-based learning principles that enhance long-term retention and transfer

--an excellent review of the research with special emphasis on evidence supporting active learning in the sciences

--a comprehensive and compelling analysis of the impact of active learning experiences

Classroom Interaction (participation and discussion)

General Resources

-- A soup to nuts resource for all aspects of discussion teaching, but particularly useful in preparing and managing face-to-face and online discussion.
--An edited anthology, full of good chapters, especially those by Christensen who is recognized as a leading authority on discussion.

--A great piece on designing discussion activities. Compares face-to-face and online discussions, and structured and unstructured discussion. Lots of good references.

--If you need to be persuaded of the value of student interaction, this article makes a convincing case for it. It also lists the barriers that prevent many faculty from using interaction and offers an array of strategies for overcoming them. Never mind that it’s written about biology students, the contents are relevant in every discipline.

**Participation and Discussion**

Auster, C. J. and MacRone, M. “The Classroom as a Negotiated Social Setting: An Empirical Student of the Effects of Faculty Members’ Behaviors on Students’ Participation.” *Teaching Sociology,* 1994, 22, 289-300.
--In a study that compared classes with the most and least participation, there was significantly more participation when faculty asked analytical rather than factual questions and when they called on students by name, provided positive reinforcement and asked for student’s opinions even when they didn’t volunteer.

--Contains a rubric that can be used to assess participation.

--Over half the students in this study did not participate in any of the 10 session of each class observed.

--Offers a good overview of the intentions behind the use of participation and suggests new ways of thinking about its use.

--Assigned students to write questions prior to labs. Analysis of the questions revealed students did not write many higher order questions and that this practice of writing questions did not dramatically improve the quality of the questions. Researchers conclude that in order to write better questions, students need direct instruction of the types and quality of questions.

--Empirically investigated a method of having students record and describe their discussion contributions which showed that student did not over-report their participation.
Marbach-Ad, G. and Sokolove, P. G. “Can Undergraduate Biology Students Learn to Ask Higher Level Questions?” *Journal of Research in Science Teaching*, 2000, 37 (8), 854-870. The results of this study answer the question yes. In a large biology course taught using a variety of active learning strategies that emphasized questioning, the quality of student questions improved significantly compared with a course taught using a lecture approach.


--An excellent article that explores the pros and cons of grading participation, issues that make it challenging to grade and offers some alternative strategies.


--Half the students surveyed in this study said they participated infrequently or never in their classes.


--Analyzed 50 rubrics which identified 153 performance criteria for online discussions. Organized these criteria into four major categories: cognitive, mechanical, procedural/managerial and interactive. Lots of items included in the article.


--“The more students perceive the professor as an authority of knowledge, the less likely it is they will participate in class.” (p. 586)


--I describe the process I use to let students set the participation policy in the class (pp. 101-104) and how I use self- and peer assessment in grading participation (pp. 189-191).

Weimer, M. Discussion Details. Teaching Professor Blog Post, April 10, 2013. Find it at: www.facultyfocus.com

--Identifies the various decisions a teacher must make when deciding how to respond to a student comment and the details that need to be kept track of as the discussion unfolds.


--A classic; full of great advice on preparing for and facilitating classroom interaction.

**Group Work**

**Forming Groups**


**Designing Group Activities and Assignments**


**Interesting Group Activities and Assignments**


**Group Dysfunction: Causes and Cures**


**Assessing Learning in Groups**


